TSF15-2015-000203

Abstract for an Invited Paper
for the TSF15 Meeting of
the American Physical Society

The 75th Anniversary of the Tacoma Narrows Bridge Collapse

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During a gale on November 7, 1940, the Tacoma Narrows Bridge exhibited remarkable torsional oscillations before collapsing spectacularly into Puget Sound. This talk will survey how physics classes in the following decades have viewed the collapse on a variety of formats (16mm film, 8mm film loop, videodisc, VHS tape, and DVD) and will address the following questions: When physics classes watch modern video showing the oscillations and the free fall of the bridge fragments, are these scenes sped up, slowed down, or at the correct speed, compared to what was observed by the eyewitnesses on November 7, 1940? Can we use physics to determine the frame rates of the original 16mm cameras that filmed the events? Was the wind blowing steadily at a special velocity that excited the torsional oscillations by resonance? What is the connection between the strong winds in the Tacoma Narrows on November 7, 1940, and a remarkable meteorological event four days later?